Public Meeting on

Calvert Cliffs License Renewal Application

April 6, 1999

I am Dr. Joseph Mihursky, a University Professor and have been an applied aquatic ecologist for over 40 years. For many years I ran a field and laboratory research operation concerned with environmental effects of energy conversion systems such as nuclear power plants. Here in Maryland our study sites included a region around Calvert Cliffs as well as four other power plant sites. We were recognized as a "center of excellence" by Federal agencies and the State of Maryland. I have been advisor to other US States, the federal government and other nations of the world on these same environmental matters.

Regarding power plants we made a number of recommendations about site selection, engineering designs and operational features that in the main were implemented by BG&E in order to minimize biological damage to the local bay system. I heartily commend BG & E for doing so.

The Calvert Cliffs plant which requires 15 square mile feet of Bay water per day to release its waste heat, does effect pumped entrained and impinged organism because of required Bay water pass through of its heat exchange system. Organisms such as phytoplankton, zooplankton, shellfish and finfish eggs and larvae, small fish as well as combjellies and jellyfish may be damaged or killed. Because of the large hydraulic, mixing and diluting circumstances, effects upon Bay organism population dynamics is debatable or difficult to assess especially on a larger regional Bay wide scale.

Hydraulic and physical discontinuities of current velocities and temperature do influence normal seasonal behavior of mobile species such as finfish. Also water velocity has scoured about a 90-100 acre area in the high velocity discharge area and has resulted in a changed benthic community structure.

Although the above incremental effects on the local Bay system are known, the State and Federal regulatory agencies have deemed them acceptable in return for electricity production.

Although BG & E has worked hard at being a "good neighbor", personally I would prefer having a more benign and lower risk electricity producing system in operation, as I do live within the 10 mile radius of risk concern. I do understand, in detail, the process and procedures that led to the installation at this location by BG&E. The past is done.

My existing concerns as a local informed citizen of Calvert County for 38 years are five fold. **One** is continued storage of spent radioactive material on site, but I recognize the complexities of this national problem. **Two** is the eventual issue of decommissioning, burial cost and future care of the facility. **Three** is the question of the biological effects of batch release of radioactive tritium to the Bay. Although tritium is a weak beta emitter, it can be incorporated with water into the cell nucleus of rapidly developing early life history stages of Bay organisms such as oyster, clams, fish, etc. What does tritium uptake mean to the genetic well being of key Bay organisms? I am not aware that this question has been addressed at the Calvert Cliffs site.

Some years ago I was part of a federally appointed team to oversee the decontamination of the Three Mile Island facility after partial fuel rod meltdown and radioactive release. One of the recommendations eventually developed concerned

precautionary measures about public safety whereby potassium iodide pills should be made available to every household and facility having children that were located within the critical area around a nuclear power plant. This recommendation recognized that children are highly prone to uptake of radioactive iodine that may be released from a plant incident. Such uptake can cause thyroid cancer problems. So, my **fourth** concern is that since such precautionary measures are being followed by other U. S. States and nations of the world, why is such a policy not pursued here by government and management in the Calvert Cliffs region?

My **fifth** and final concern is a metallurgical one. I realize that a nuclear power plant is an awesome engineering accomplishment. But, I also recognize that in the early days we did not have a sufficient data base on the effects of long term radiological emissions upon metallurgical properties. We now know that brittleness is one consequence of this exposure and results in "blowouts" of welds and piping. How is this substantial problem going to be avoided as this facility continues to age?

Thank you for the opportunity to comment on this very important societal matter.

J. A. Mihursky